

WHAT IS CLAIMED IS:

1. A resistive structure, comprising:
a diffusion-resistant aluminum conductive layer; and
a resistor layer over said conductive layer, wherein said resistor layer comprises nitrogen and phosphorus-doped amorphous silicon comprising between about 5 and 15 atomic percent nitrogen, and about 1×10^{20} to 5×10^{20} atoms/cm³ phosphorus.
2. The resistive structure of Claim 1, further comprising a chromium layer between the aluminum layer and the resistor layer.
3. The resistive structure of Claim 1, wherein the conductive layer has a thickness of between about 2,000 and 2,500 Å.
4. The resistive structure of Claim 1, wherein the resistor layer has a thickness of between about 2,000 and 7,500 Å.
5. A field emission display device, comprising:
a substrate;
a diffusion-resistant conductive layer over the substrate;
an amorphous silicon resistor layer over the conductive layer, the resistor layer being doped with nitrogen and phosphorus;
a dielectric layer over the resistor layer; and
a gate electrode over the dielectric layer, the gate electrode including a gate conductive layer.
6. The field emission display device of Claim 5, wherein the resistor layer has a nitrogen concentration of between about 5 and 15 atomic percent.
7. The field emission display device of Claim 5, wherein the conductive layer includes a layer of aluminum.
8. The field emission display device of Claim 7, wherein the conductive layer further includes a layer of chromium formed over the layer of aluminum to prevent diffusion between the aluminum layer and the amorphous silicon layer.
9. A field emission display device, comprising:
a substrate;
a diffusion-resistant aluminum conductive layer over the substrate;

an amorphous silicon resistor layer over the conductive layer, the resistor layer being doped with nitrogen and phosphorus;

a dielectric layer over the resistor layer; and

a gate electrode over the dielectric layer, the gate electrode including a gate conductive layer.

10. The field emission display device of Claim 9, wherein the resistor layer has a nitrogen concentration of between about 5 and 15 atomic percent and about 1×10^{20} to 5×10^{20} atoms/cm³ phosphorus.

11. A field emission display device, comprising:

a substrate;

a diffusion-resistant conductive layer over the substrate;

an amorphous silicon resistor layer over the conductive layer, the resistor layer being doped with nitrogen and phosphorus;

a dielectric layer over the resistor layer; and

a gate electrode over the dielectric layer, the gate electrode including a gate conductive layer,

wherein the conductive layer comprises a layer of chromium formed over a layer of aluminum to prevent diffusion between the aluminum layer and the amorphous silicon layer.

12. The field emission display device of Claim 11, wherein the resistor layer has a nitrogen concentration of between about 5 and 15 atomic percent.

13. The resistive structure of Claim 11, wherein the conductive layer has a thickness of between about 2,000 and 2,500 Å.

14. The resistive structure of Claim 11, wherein the resistor layer has a thickness of between about 2,000 and 7,500 Å.